AMENDMENTS TO THE CLAIMS

1. (currently amended) A method of producing an elemental material or an alloy thereof from a halide of the elemental material or halide mixtures comprising introducing the vapor halide of an elemental material or halide mixtures thereof into a liquid phase of a reducing metal of an alkali metal or alkaline earth metal or mixtures thereof present in less than or equal to the amount needed to reduce the halide vapor to the elemental material or alloy resulting in an exothermic reaction between the vapor halide and the liquid reducing metal producing particulate elemental material or alloy thereof and particulate halide salt of the reducing metal, cooling the reaction products <u>utilizing an excess of the halide vapor, an additional cooling gas, or a combination thereof</u> so that substantially all the particulate elemental material or alloy remains unsintered, and separating the particulate reaction products.

2. (original) The method of claim 1, wherein the elemental material or alloy is one or more of Ti, Al, Sb, Be, B, Ga, Mo, Nb, Ta, V, Zr , U, Re, Si, Os, Ir and mixtures thereof.

3. (original) The method of claim 2, wherein the reducing metal is an alkali metal.

4. (original) The method of claim 3, wherein the reducing metal is Na.

5. (original) The method of claim 4, wherein the elemental material or an alloy thereof includes titanium and the Na is flowing.

6. (original) The method of claim 2, wherein the reducing metal is an alkaline earth metal.

7. (original) The method of claim 6, wherein the reducing metal is Mg.

8. (original) The method of claim 7, wherein the elemental material or alloy thereof includes titanium and the Mg is flowing.

9. (original) The method of claim 2, wherein the alloy is substantially Ti and Al and V and is formed by introducing the chlorides thereof as vapor into a liquid phase of a reducing metal.

10. (original) The method of claim 2, wherein the particulate reaction products are cooled with an inert sweep gas.

11. (original) The method of claim 9, wherein the reducing metal is Na, the inert sweep gas is Ar and the alloy is Ti - 6% by weight Al- 4% by weight V.

12. (original) The method of claim 9, wherein the reducing metal is Mg, the inert sweep gas is Ar and the alloy is Ti-6% by weight Al - 4% by weight V.

13. (original) The method of claim 1, wherein the temperature of the particulate elemental material or alloy thereof is maintained at or below the boiling point of the halide salt of the reducing metal.

14. (original) The method of claim 10, wherein the inert sweep gas flows countercurrently to the particulate reaction products.

15. (original) The method of claim 10, wherein the inert sweep gas flows co-currently with the particulate reaction products; and further including filtering the particulate reaction products from the sweep gas.

16. (original) The method of claim 1, wherein the particulate reaction products move in one direction and are cooled by contact with an inert gas flowing countercurrently to the

particulate reaction products, the inert gas separating any excess vapor halide of the elemental material or halide mixtures thereof present from the particulate reaction products before separation of the particulate halide salt of the reducing metal from elemental material or alloy thereof.

17. (original) The method of claim 16, wherein the cooled particulate reaction products are contacted with water to separate the halide salt of the reducing metal from particulate elemental material or alloy thereof.

18. (currently amended) A method of producing a metal element or an alloy thereof in an exothermic reaction between a chloride vapor comprising the chloride of the metal element or the chlorides of the constituents of the alloy and a reducing metal of an alkali metal or an alkali earth metal or mixtures thereof, comprising establishing a liquid phase of the reducing metal and introducing the chloride vapor ~~chloride or vapor chlorides of the metal or alloy to be produced~~ into the liquid phase of the reducing metal in an amount equal to or less than the stoichiometric amount needed to react with the reducing metal to produce particulate reaction products of the metal element or alloy thereof and particulate chloride salt of the reducing metal and heat, cooling the reaction products utilizing an excess of the chloride vapor, an additional cooling gas, or a combination thereof to prevent sintering of the particulate metal element or alloy, and separating the cooled particulate metal element or alloy from the chloride salt of the reducing metal.

19. (original) The method of claim 18, wherein the particulate reaction products are cooled by contact with flowing gas cooler than the reaction products.

20. (original) The method of claim 19, wherein the flowing gas is inert with respect to the particulate reaction products and flows through the particulate products to cool the particulate reaction products and to separate any chloride vapor from the particulate reaction products.

21. (original) The method of claim 20, wherein the metal element is Ti or alloys thereof or Zr or alloys thereof and the reducing metal is Na or an alkaline earth metal.

22. (original) The method of claim 21, wherein the alkaline earth metal is Mg.

23. (original) The method of claim 21, wherein the metal element is Ti.

24. (original) The method of claim 21, wherein the alloy includes Ti and V and Al.

25. (previously presented) The method of claim 18, wherein any excess chloride vapor present is separated from the reaction products.

26. (canceled).

27. (canceled).